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Bridging Public Health and Clinical Practice: A Pilot of the CDC's Stopping Elderly Accidents, Deaths, and Injuries (STEADI) Fall Risk Screening and Prevention Program in an Academic Medical Center Family and Community Medicine Clinic

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**Bridging Public Health and Clinical Practice: A Pilot of the CDC's Stopping
Elderly Accidents, Deaths, and Injuries (STEADI) Fall Risk Screening and
Prevention Program in an Academic Medical Center Family and
Community Medicine Clinic**

CAPSTONE PROJECT PAPER

A paper submitted in partial fulfillment of the
Requirements for the degree of
Master of Public Health in the
University of Kentucky College of Public Health

By

Carolyn C. Shammass, M.D., J.D.

Lexington, Kentucky April 19, 2017

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Abstract

Background: Fall-related morbidity and mortality in the older adult population is a pressing public health problem both nationally and in Kentucky, which has a fall rate above the national average. Implementation of the CDC's Stopping Elderly Accidents, Deaths, and Injuries (STEADI) fall prevention program, offers an opportunity to effectively reduce falls, fall-related injuries and associated costs. The implementation process also serves to foster cooperative interdisciplinary and interdepartmental relationships within health care systems, and bridge public health and clinical practice.

Purpose: The capstone describes and evaluates a pilot of STEADI at the University of Kentucky's Family and Community Medicine (UKFCM) Clinic. It focuses on pilot development by an interdisciplinary/interdepartmental workgroup and partnership with other key stakeholders, such as the Kentucky Department for Public Health (KDPH). It presents lessons learned, recommendations for improvement and next steps in STEADI implementation. It also reviews the literature on STEADI pilot programs and facilitators and barriers to implementation.

Methods: The five-day pilot was conducted at the UK Family and Community Medicine Clinic. Patients age 65 years and older were screened and evaluated for fall risk using a paper form based on the STEADI algorithm. The pilot was evaluated using the eight-step Kotter model for organizational change.

Results: Sixty-four patients (fifty percent) of patients age 65 and older were screened, of whom forty-four percent screened positive for increased fall risk. Meaningful statistics regarding other components of STEADI were generally not

obtainable due to ambiguities in the design of the form. The pilot evaluation demonstrated several steps in the Kotter framework that were particularly successful: creating a sense of urgency; building a guiding coalition; and generating short-term gains. Lessons learned and recommendations included clarification of the assessment and intervention sections of the template before incorporation into the ambulatory electronic health record (AEHR); additional training of providers and staff; and greater attention to workflow.

Implications: STEADI presents an opportunity to bridge public health and clinical practice and if broadly implemented, promises to reduce the Commonwealth's high rate of older adult fall-related morbidity and mortality, as well as associated costs.

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List of Abbreviations

ACA	Affordable Care Act
AEHR	Ambulatory Electronic Health Record
AWV	Annual Wellness Visit
CDC	Centers for Disease Control and Prevention
CEE	Clinical Engagement and Training
CMS	Centers for Medicare & Medicaid Services
CPT	Current Procedural Terminology
CST	Clinical Service Technician
EHR	Electronic Health Record
KDPH	Kentucky Department for Public Health
KIPRC	Kentucky Injury and Prevention Research Center
KSAC	Kentucky Safe Aging Coalition
KSPAN	Kentucky Safety and Prevention Alignment Network
KVIPP	Kentucky Violence and Injury Prevention Program
LPN	Licensed Practical Nurse
MACRA	Medicare Access and CHIP Reauthorization Act
MIPS	Merit-based Incentive Payment System
MOC	Maintenance of Certification
ODH	Ohio Department of Health
OHSU	Oregon Health & Science University
PACT	Patient Aligned Care Team
SFPP	State Falls Prevention Project
STEADI	Stopping Elderly Accidents, Death, and Injuries
TJC	The Joint Commission
TUG	Timed Up and Go
UHS	United Health Services
UKFCM	University of Kentucky Family and Community Medicine
UKHC	University of Kentucky HealthCare
USPSTF	United States Preventive Services Task Force
VA	Veterans Administration
VIPP	Violence Injury and Prevention Center (VIPPP)

Introduction:

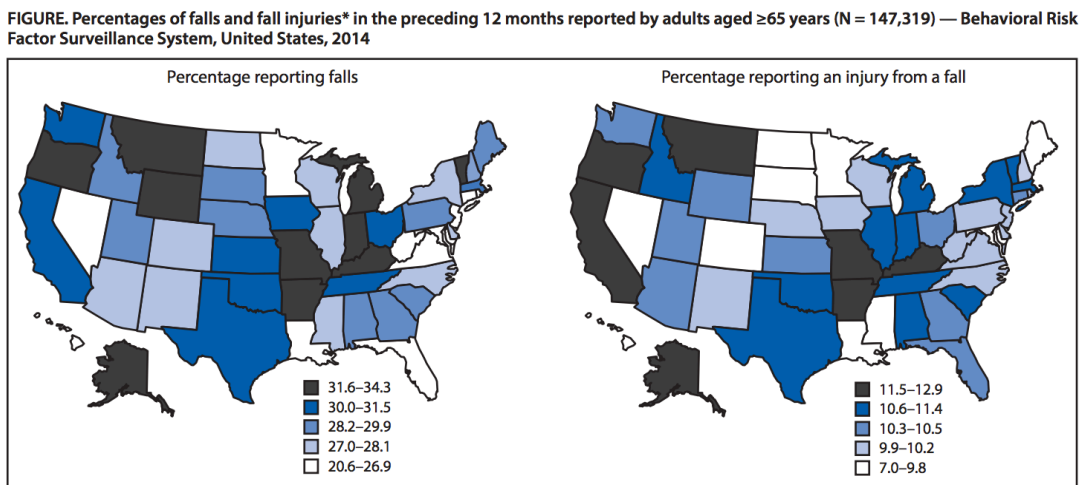
Epidemiology and Impact of Falls

Falls are the leading cause of unintentional injury and injury-related death in adults age 65 and older (Bergen, Stevens, & Burns, 2016). The CDC estimates that in 2014, 28.7 percent of older adults living in the community reported falling within the past year, resulting in 7 million injuries and 27,000 deaths (Bergen et al., 2016). In Kentucky, the statistics are even more compelling, with 32.1 percent of older adults having reported a fall within the past year (Bergen et al., 2016). There are a number of risk factors for falls, including age; history of falls; lower body weakness; gait or balance impairment; psychoactive and other medications; chronic diseases such as diabetes and arthritis; and home hazards (Stevens, 2005). Fear of falling, resulting in decreased physical activity, is also a risk factor (Phelan, Mahoney, Voit & Stevens, 2015). According to one study, the risk of falling was 19 percent with one risk factor, but almost quadrupled when four or more risk factors were present (Tinetti, Speechley, & Ginter, 1988). Women are more likely to fall and to suffer a fall-related injury, but men are more likely to die as a result of a fall (Peel, 20). According to the World Health Organization, socioeconomic risk factors for falls include low income and educational levels, inadequate housing, lack of social interactions, limited access to health and social services and lack of community resources (WHO, 2007).

It is unclear why Kentucky's fall rate exceeds that of other states, socioeconomic factors and high rates of chronic diseases such as arthritis and diabetes, may play a role. As is the case nationwide (Baldwin, Breiding, & Sleet, 2016), falls represent the leading

cause of traumatic brain injury in the older adult population in Kentucky (KSPAN, 2009-2014). The state’s 11.9 percent fall-related injury rate exceeds the 10.7 percent national average (Bergen et al., 2016). It has the dubious distinction of being one of the top ten states for both percentage of older adults reporting falls and fall-related injuries within the past year (Bergen et al., 2016) as shown in Figure 1 below.

Figure 1: Percentages of falls and fall injuries in the preceding 12 months reported by adults aged ≥65 years (N=147,319) – Behavioral Risk Factor Surveillance System, United States, 2014

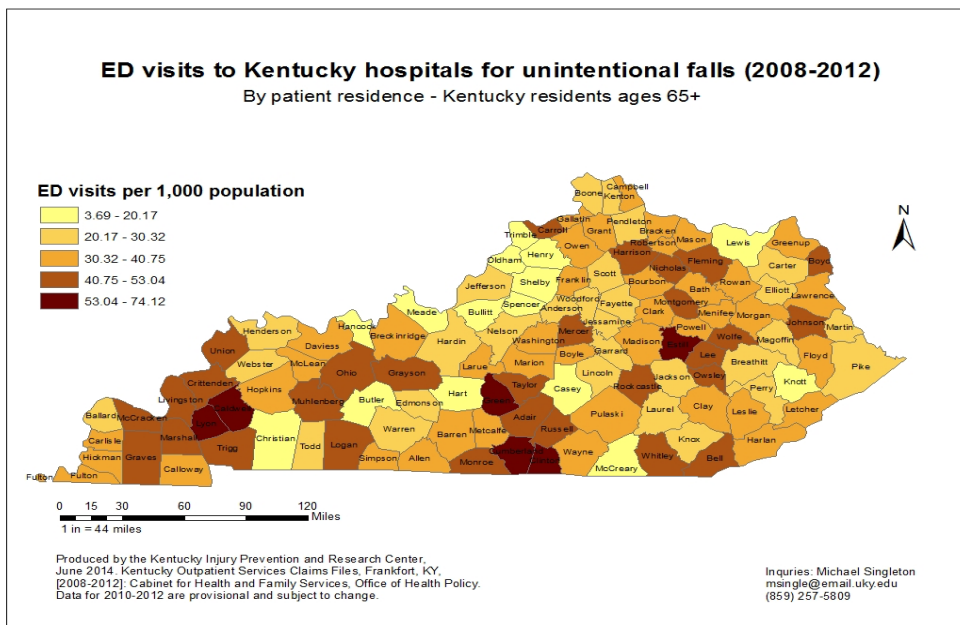


* Injuries resulting from falls that caused respondents to limit their regular activities for ≥1 days or to go see a doctor.

The rate of emergency department visits and inpatient discharges for fall-related injuries varies by county (Figure 2 and Figure 3). The University of Kentucky HealthCare (UKHC) system, located in Fayette County, serves a number of counties that have high rates of emergency department visits and inpatient discharges for injuries due to falls. UKFMC sees 50,000 patients per year, primarily from Fayette and surrounding counties;

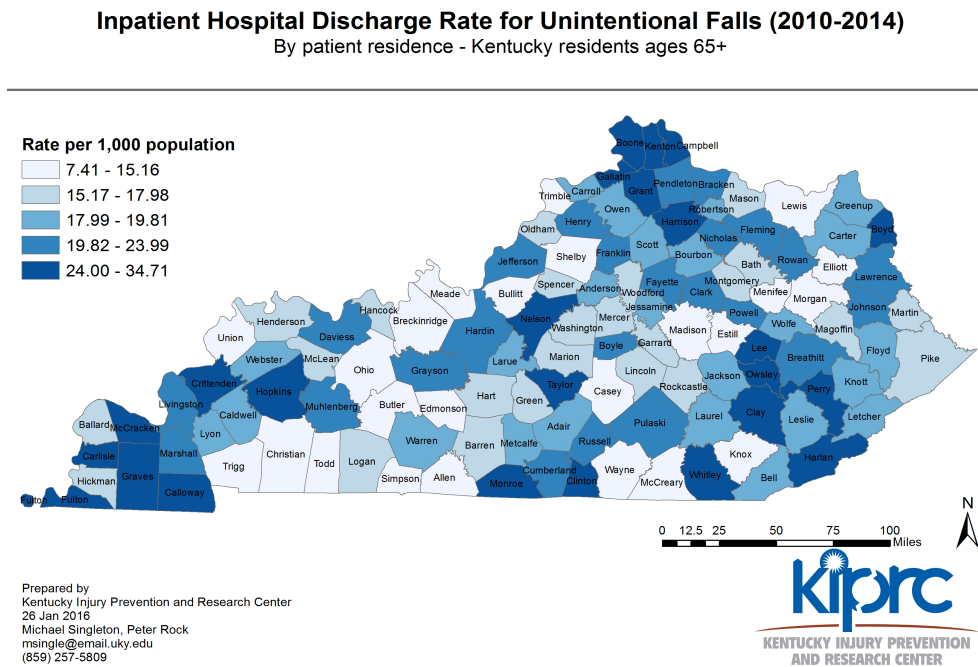
approximately 8 percent of patients are covered by Medicare (J. Ballard, personal communication, April 12, 2017 and April 18, 2017). According to U.S. Census Bureau estimates (2015), 12.0 percent of Fayette County's and 15.2 percent of Kentucky's population are age 65 or older, compared to the U.S. average of 14.9 percent.

Figure 2: ED Visits to Kentucky hospitals for unintentional falls (2008-2012)



Retrieved April 19, 2017 from Kentucky Injury Prevention and Research Center (a bona fide agent of the KY Department for Public Health), KY-IBIS site: <https://kyibis.mc.uky.edu/kiprc>; http://www.safekentucky.org/images/Data/falls-by-county-maps/ED_falls.jpg

Figure 3: Inpatient hospital discharge rate for unintentional falls (2010-2014)



Retrieved April 19, 2017 from Kentucky Injury Prevention and Research Center (a bona fide agent of the KY Department for Public Health), KY-IBIS site: <https://kyibis.mc.uky.edu/kiprc>; http://www.safekentucky.org/images/Data/falls-by-county-maps/ED_falls.jpg

Falls not only take a toll in terms of human suffering, but are associated with staggering direct and indirect medical costs. Fall-related Medicare expenditures are estimated at more than \$31 billion, and are expected to grow to \$100 billion by 2030 (Burns et al., 2016). In Kentucky, total hospital charges amounted to close to \$366.5 million in 2014 (Kentucky Injury and Prevention and Research Center, 2017). Total inpatient hospital charges more than tripled from 2005 to 2014 (Kentucky Injury and Prevention Research Center, 2017). Although not all related to falls, the financial burden of hospitalization in Kentucky is large and growing.

Falls also result in increased nursing home placement, loss of independence and decreased quality of life (Stevens & Burns, 2015). There is a growing imperative to address the problem of fall-related injury, death and cost nationally and in Kentucky, particularly given a projected increase of 55 percent in the U.S. population age 65 and older by 2030, accompanied by a rise in the number of falls to almost 49 million, with 12 million injuries (Bergen et al., 2016).

Stopping Elderly Accidents, Deaths, and Injuries (STEADI)

The Centers for Disease Control and Prevention (CDC) has sought to reduce falls through the evidence-based Stopping Elderly Accidents, Deaths, and Injuries (STEADI) initiative. The STEADI toolkit was designed to improve falls risk screening and prevention rates in primary care settings (Casey et al., 2016). The STEADI algorithm and educational materials included in the toolkit, facilitate fall prevention awareness and communication between providers and patients.

Surprisingly, less than half of older adults will disclose having had a fall to a health care provider (CDC, 2015). Reluctance to talk to a provider about falls is due to a number of factors, including embarrassment, fear of loss of autonomy, being overly optimistic about capabilities, and the mistaken assumption that falls are a normal part of aging (Child et al. 2012; Moylan & Binder, 2007; Stevens & Burns, 2015; Yardley, Donovan-Hall, Francis, & Todd, 2006). Moreover, physicians often fail to inquire about falls for a number of reasons, including unclear roles among members of the primary care team; unclear or changing clinical recommendations; and lack of familiarity with fall

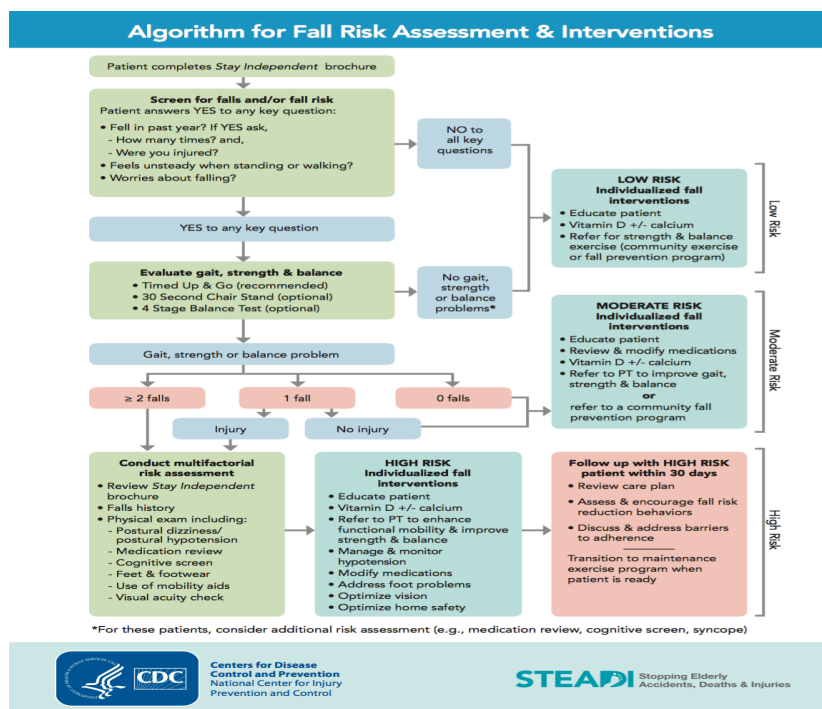
interventions and resources (Casey et al., 2016; Jones, Ghosh, Horn, Smith, & Vogt, 2011; Landis & Galvin, 2014; Stevens & Phelan, 2013).

While there is substantial evidence to support the effectiveness of falls screening and multidimensional interventions to reduce risk (Gillespie et al., 2012), it is estimated that physicians only ask whether a patient has fallen about one-third of the time (Jones et al., 2011). A number of barriers to provider screening have been cited: lack of role clarity among primary care team members; unclear or changing falls risk reduction recommendations; complicated and fragmented financial and quality incentives; lack of awareness and knowledge about fall prevention interventions and resources (Casey et al., 2016; Child et al., 2012; Chou et al., 2006; Jones et al., 2011; Landis & Galvin, 2014; Stevens & Phelan, 2013).

STEADI was developed to address these issues and assist primary care providers in screening older adult patients for fall risk and linking them to appropriate interventions. The STEADI algorithm (Figure 4) is based on the 2010 American Geriatric Society and British Geriatric Society Clinical Practice Guidelines, as well input from providers (Stevens & Phelan, 2013). It includes screening (asking three key questions related to fall risk, such as number of falls in the past year); evaluation of gait/balance; assessment of risk factors (e.g. medications and cognitive impairment); and interventions (e.g. a community-based exercise or fall prevention program) (CDC, 2016). The effectiveness of fall interventions, including several community-based group exercise programs, was demonstrated in a 2012 Cochrane Review of almost 160 randomized controlled trials, with a total of more than 179,000 participants (Gillespie et

al., 2012; Kaniewski, 2015). Evaluation by a clinician, and treatment of risk factors result in a 24 reduction in fall rate (Gillespie et al., 2012). Community-based programs may also achieve substantial cost savings; the Stepping On program, for instance, has been shown to have a return on investment of 64 percent (Houry et al., 2016).

Figure 4: Algorithm for Fall Risk Assessment & Interventions



CDC, 2016

Optimally, the algorithm in its entirety would be implemented in all primary care practices, as multidimensional interventions, particularly those that include gait, balance and strength training, have the greatest impact on reducing falls (Stevens & Burns, 2015). Recognizing that the algorithm may not be performed in its entirety due to time and other constraints (see barriers to implementation below), providers are asked to

focus on three key actions: 1) screening; 2) reviewing medications to reduce/eliminate those that increase fall risk; and 3) prescribing Vitamin D to improve musculoskeletal health (Bergen et al., 2016). In addition to the clinical decision support algorithm, the CDC has developed a STEADI toolkit with resources for providers, such as training videos and patient educational materials (CDC, 2016).

The CDC (2015) projects that for every 5,000 providers who implement STEADI over a 5-year period, more than 6 million older adults could be screened; 1 million falls prevented; and \$3.5 billion in direct medical costs saved.

Reimbursement and Other Incentives

Fall risk screening and evaluation is part of the Welcome to Medicare Visit and Annual Medicare Visit, and therefore are an avenue of reimbursement for fall-related provider services. Fall risk screening, however, is only one of a number of evaluations to be performed during the visit, and does not include robust assessment or intervention. In addition, it should be noted that Medicare Wellness Annual visits are underutilized, with a utilization rate of 12.8 percent in Kentucky, and only 17.7 percent nationally (CMS, 2015).

Health care providers and systems are given incentives to implement STEADI fall prevention through the Medicare Access and CHIP Reauthorization Act (MACRA's) Merit-based Incentive Payment System (MIPS). Landis and Galvin (2015), studied fall-related measures in CMS' Physician Quality Reporting System (PQRS), the predecessor to MIPS, with a goal of reducing fall-related injuries and costs by 10 percent. Four

primary care practices, located in western North Carolina (a region of the state with a high fall rate), with over two thousand older adult patients, participated in the quality improvement project. Almost 70 percent of eligible patients were screened. Of those with reported falls, close to 90 percent were assessed. A little under a quarter of those patients had a documented plan of care. Disappointingly, the study failed to demonstrate a significant reduction in fall-related hospitalizations or costs, which the authors suggest may have been due to “inadequate implementation of the management component of the program.” (Landis and Galvin, 2015, p. 2413)

An initiative by the CDC, through a cooperative agreement with the American College of Preventive Medicine (ACPM), is aimed at gaining CMS approval, a lengthy and arduous process, for new fall-related CPT codes which are needed in order to bill for these services (ACPM, n.d.). Professional maintenance of certification (MOC) credits, as well as quality improvement recognition offered by health care systems and insurers have also been used to incentivize STEADI implementation (Casey et al., 2016; Gearon, 2015).

A change in United States Preventive Services Task Force (USPSTF) recommendations, which guide primary physician practice, would likely promote fall screening and prevention uptake (Tinetti & Brach, 2012). Multidimensional fall risk assessment is not currently recommended for all community-dwelling older adults, but only for selected individuals based on their circumstances (USPSTF C recommendation) (Moyer, 2012). This USPSTF recommendation is, however, under review (USPSTF, 2017), and if changed from a Grade C to a Grade A or B recommendation, would influence

reimbursement, particularly given that the Affordable Care Act (ACA) mandates Medicare coverage for preventive services (Tinetti & Brach, 2012).

Literature Review:

A literature review of STEADI implementation was conducted in PubMed, Web of Science and AgeLine using the following terms: PubMed:"STEADI" AND "Accidental Falls/prevention and control"[majr] AND "Aged"[mesh] Filters: Review, 5 years, English; Web of Science using only keywords; AgeLine using the following search terms: (DE "Falls") OR (DE "Accident Prevention").The literature was supplemented by online resources and information provided by the Ohio Department of Health.

Shortly following the development of the STEADI decision support tool in 2011, the CDC's State Falls Prevention Project (SFPP) provided funding to health departments in Colorado, New York and Oregon, to develop fall prevention strategies in clinical practices, health care systems and community organizations (Casey, Parker, Winkler, Liu, Lambert, & Eckstrom, 2016; Shubert, Smith, Schneider, Wilson & Ory, 2016; Stevens & Phelan, 2013). These three states have just recently completed the five-year implementation period (Shubert et al., 2016). To date, neither Colorado nor New York have published a description or evaluation of STEADI implementation in their respective states. Results of the New York program have been reported in the popular press and various websites. Additionally, a small study of fall prevention-related provider attitudes and practices was published in 2015 (Smith, Stevens, Ehrenreich Wilson, Schuster, Cherry & Ory, 2015).

The Ohio Department of Health, with the assistance of a consulting firm, has also recently completed a 6-month evaluation of a pilot project in one of their large health care systems (RAMA, 2015; RAMA, 2016). All of these state-initiated programs identify

important components of successful implementation and identify barriers. The foundation for the UKFCM pilot analysis, however, is the Kotter-based evaluation of the STEADI initiative in Oregon. Importantly, there is a paucity of publications describing STEADI quality improvement projects, initiated by primary care practices outside of the CDC-funded pilots. The UKFMC pilot may represent one of the first clinical practices to collaborate with public health entities to implement STEADI in the absence of a categorical CDC grant. Additionally, the incorporation of a fall prevention tool into the Allscripts EHR, the system used in this pilot, has not heretofore been described.

New York

New York's STEADI program was a partnership between a regional health system, United Health Services (UHS), Broome County Health Department, Broome County Office for Aging and the New York State Department of Health (Smith, 2015; UHS, 2013; Gearon, 2015). Broome County was selected for the program because approximately 17 percent of its residents are 65 years or older (UHS, 2013), and fall prevention was a top priority in the county (Gearon, 2015). The initial pilot, championed by an internal medicine physician and a nurse manager (UHS, 2013), was conducted using a paper form, followed by the development of an EHR template. As was the case in Oregon, the algorithm and workflow were simplified and adapted to meet the needs of the practice.

The success of the initial pilot led to expansion to more than fifteen clinic sites, which reported a screening rate of over 85 percent ("Dr. Floyd;" 2014). According to a

2015 *U.S. News & World Report* (2015) article, the health system reported having screened 17,500 patients and the county's fall rate has declined by 25 percent between 2010 and 2013. Importantly, in the 18 months after implementation, there was a 12 percent reduction in county hospitalizations and emergency department for fractures related to falls (Gearon, 2015).

A study by Smith et al. (2015), conducted as part of the CDC grant, examined primary care provider beliefs, knowledge and fall-related activities prior to receiving a one-hour, physician champion-led, Clinical Engagement and Education (CEE) training session. The CEE's aim was to assist clinicians in identifying ways to integrate STEADI into practice. The session brought together thirty-eight providers and staff, representing eleven practices, to discuss the problem of falls and to collectively develop ways to incorporate fall prevention into clinical practice (Smith et al., 2015). Results indicated that falls were ranked as a lower priority than diabetes and several other chronic diseases; and were not routinely screened for or intervened upon (Smith et al., 2015). Unfortunately, this study was unable, due to inadequate post-training data, to assess the impact of STEADI training on provider attitudes (Smith et al., 2015). It did, however, give meaningful feedback to the CDC regarding physician time constraints, and led to the CDC's focus on three key screening questions (has the patient fallen in the past year, do they have a fear of falling, and/or unsteadiness in standing or walking) and two key interventions (vitamin D supplementation and medication review) (Gearon, 2015).

Oregon

STEADI was implemented in Oregon through a partnership between the Oregon Health Authority (OHA) and the Oregon Health & Science University (OHSU) (Casey et al., 2016). The first step in system-wide implementation, was the development of a pilot involving geriatrics-trained providers in the Internal Medicine & Geriatrics Clinic. These clinic champions refined clinic workflow and the electronic health record tool. The pilot, conducted over several months, screened fifty-six patients age 75 patients or older. Fall risk was determined using the questions contained in the STEADI toolkit's *Stay Independent* brochure (Appendix A) which include the three key questions in the algorithm as well as questions targeted to additional risk factors. Of the 80 percent of patients who had recorded risk scores, 56 percent were determined to be at high risk. Of those at high risk, 92 percent were fully evaluated at the initial visit. Impressively, over 90 percent had a documented vision assessment, vitamin D level and fall-related care plan. The STEADI workflow and EHR were revised a number of times before being fully implementation. During the first 18 months of implementation, 45 percent of eligible patients were screened, 35 percent of whom were identified as being high risk (Casey et al., 2016).

The OHSU team surveyed health care team members to identify facilitators and barriers and used survey results to change how the program was implemented.

Facilitators included: a clinic culture that was supportive of new protocols such as STEADI; the opportunity for providers to receive Maintenance of Certification (MOC) credits; the availability of clinic champions to assist in implementation; well-prepared

clinic staff; an EHR STEADI tool that was easy to use; patient receptivity to screening; strong evidence to support falls screening; and use of STEADI to streamline the screening process and prevent falls. Time constraints, competing medical interests and the complexity of screening were identified as barriers (Casey et al., 2016). Notably, poor reimbursement was not identified as a barrier to implementation (Casey et al., 2016).

In analyzing the success of the OHSU program, the authors identified four important processes: development of workflow that did not disturb the daily practice routine; incorporation of STEADI into the EHR; piloting of workflow and the EHR template by clinic champions prior to implementation; and training of personnel on use of the EHR tool, workflow and fall prevention. They also noted the importance of early buy-in from all levels of the organization, partnership with the state health department and linkage to community interventions (Casey et al., 2016).

Ohio

The Ohio Department of Health (ODH) Violence Injury and Prevention Center (VIPPP), while not one of the original CDC grant recipients, began encouraging providers to use STEADI in 2013 (RAMA, 2015). In order to facilitate uptake of the program, it has recently embarked on an initiative to implement STEADI. The state, with the assistance of RAMA Consulting, embarked on a collaborative project with the OhioHealth system, to among other things, develop a statewide workgroup; pilot STEADI in five OhioHealth settings; identify best practices; assess barriers to implementation; develop promotional

materials; and evaluate the pilot. The five pilot sites were chosen based on having an older adult patient base, adequate staff and facilities and the use of the Epic EHR.

Consistent with Oregon's findings, the extensive report noted the importance of a physician champion, organizational buy-in, integration of STEADI into the EHR, incremental, tailored and iterative implementation, training and technical support, attention to workflow and linkage to community interventions. Moreover, an adequate reimbursement mechanism and other incentives helped to ensure sustainability (RAMA, 2015; RAMA, 2016).

The 6-month quantitative and qualitative evaluation, based on data collected from a variety of sources, including the EHR and focus groups, showed that almost 450 patients had been screened, although due to data collection difficulties the initial report was not able to determine the percentage of eligible patients screened (RAMA, 2016). Not surprisingly, the most frequently reported barrier was lack of staff time or availability (RAMA, 2016).

Implementation from a Department of Public Health Perspective

A number of lessons have been learned by state health department grantees charged with implementing STEADI. An article by Thoreson, Shields, Dowler & Baer (2015), each of whom is from one of the grantee states, summarized the key elements in successful fall prevention program implementation, such as building an infrastructure and ensuring sustainability. Shubert et al. (2016) identified nine important challenges departments of public health face in implementing STEADI: 1) changing physician

practice, which necessitates finding “meaningful value propositions” for practicing and building relationships; 2) limited knowledge on the part of providers and systems regarding the value and availability of community-based interventions; 3) a large number of competing efforts to improve efficiency; 4) lack of uniformity of motivators among health care systems; 5) lack of a comprehensive and centralized system for community-based interventions and resources; 6) lack of bidirectional referral systems; 7) the need to create demand for community services through provider referral while having an adequate supply of community programs; 8) finding appropriate partners; and 9) sustainability. While many of these issues must be solved by health care systems, clinicians and community organizations public health entities can bring stakeholders together, provide education and facilitate problem-solving.

Other Pilots

A pilot study at the Tampa James A. Haley VA, tested whether STEADI could be adapted for use by the Patient Aligned Care Team (PACT) (Ferguson, Friedman & Bulat, 2016). The PACT was comprised of a physician, nurse and clerk (Ferguson, 2016). Lack of robust leadership support, difficulty in integration into the workflow and duplication of aspects of the existing VA fall prevention program, were among the barriers identified. More positively, pilot participants reported increased fall prevention awareness and use of toolkit educational materials.

Conclusion

The literature on STEADI pilot studies identifies a number of elements needed for successful implementation. A physician champion, buy-in from health system leadership, incorporation of the decision support tool into the EHR, and collaboration with health department and community organizations, facilitate a successful program. Time constraints, competing clinical demands and integration into the clinic workflow continue to represent significant challenges and necessitate an iterative process. The UKFMC pilot, discussed below, was characterized by a number of the factors needed for successful implementation, but will require further revisions in order to be fully integrated into the clinic and throughout UKHC.

Capstone Project:

The purpose of this project was to describe and evaluate, using the Kotter model, a pilot of the STEADI prevention program. The pilot was developed by an interdisciplinary/interdepartmental workgroup and facilitated through partnership with other key stakeholders.

Methods

The capstone project was based on a UK Family and Community Medicine fall prevention quality improvement project using the CDC's STEADI toolkit. It was developed by an interdisciplinary and interdepartmental workgroup, in cooperation with the Kentucky Department for Public Health. The pilot development process and pilot design are described more fully in the background section. Descriptive statistics were used in the analysis of pilot results. The pilot was evaluated using the Kotter Leading Change model (Kotter, 1995) which is comprised of eight steps: 1) creating a sense of urgency; 2) building a guiding coalition; 3) forming a strategic vision and initiatives; 4) enlisting a volunteer army; 5) enabling action by removing barriers; 6) generating short-term wins; 7) sustaining acceleration; and 8) instituting change.

This project was reviewed by the University of Kentucky Institutional Review Board and as was determined to meet federal criteria to qualify as an exempt study.

Background

University of Kentucky HealthCare (UKHC), an academic medical center and a leader in health care in the state, seeks to “offer care that is patient-centered, multi-disciplinary and collaborative” (Strategic Plan, 2016, p. 4) and is committed to evidence-based care and continuous quality improvement (Strategic Plan, 2016, p. 40). At the time that the University of Kentucky Family and Community Medicine (UKFCM) quality improvement project commenced, UKHC already had an inpatient fall screening, assessment and prevention program in place. It had also implemented a screening program to identify patients at risk of falling while attending medical appointments in UKHC clinics. UKFCM recognized the opportunity to expand the organization’s existing fall prevention efforts through piloting STEADI, and later incorporating the algorithm into its enterprise-wide ambulatory electronic record.

The fall prevention quality improvement project presented a unique opportunity to partner with the Kentucky Department for Public Health (KDPH). KDPH, understanding the significant public health problem that falls and fall-related deaths and injuries present, has been involved in a variety of efforts to reduce falls in the state, and has sought to collaborate with health care providers and other community stakeholders to implement STEADI. The health department, as well as the Kentucky Injury Prevention and Research Center (KIPRC), a partnership between KDPH and the University of Kentucky College of Public Health, have engaged in a number of activities that support falls prevention. KIPRC’s Kentucky Violence and Injury Prevention Program (KVIPP), tracks and reports state and county fall-related injury data (C.S. Sparrow, personal

communication, April 4, 2017). For over five years, the Kentucky Safe Aging Coalition (KSAC), a subcommittee of the Kentucky Safety and Prevention Alignment Network (KSPAN), has hosted an annual Falls Summit (D. Falls, personal communication, April 4, 2017). The Summit, attended by members of the health care and public health community, has included information on STEADI (KSPAN, 2009-2014). Data collection is funded through the CDC Core State Violence and Injury Prevention Program Grant. Support for the Summit has been provided by the osteoporosis program, as part of the CDC Preventive Health and Health Services Block Grant, and Kentucky Violence and Injury Prevention Program (KVIPP) (D. Falls, personal communication, April 5, 2017; C. S. Sparrow, personal communication, April 4, 2017). Given the demonstrated commitment of UKHC, UKFCM and the state health department to fall prevention, the quality improvement pilot presented a clear opportunity to introduce STEADI into clinical practice.

Pilot Development and Rollout

The fall prevention pilot workgroup was led by two physician champions – the UKFCM clinic director, Dr. Jonathan Ballard, and this author, a resident physician. The clinic director had extensive experience in quality improvement and had strong working relationships with project partners within the UKHC organization. This author had been involved in fall prevention projects at KIPRC and KDPH. It was recognized that in order to be successful, the project workgroup should be interdisciplinary and interdepartmental. A workgroup was established and included an informaticist; practice manager; assistant

chief nurse executive; family practice patient services coordinator (senior); physical therapist from UKHC's Kentucky Clinic Outpatient Therapy; and a nurse clinical manager from the the Kentucky Neuroscience Institute. Valuable input was also provided by the UKHC Trauma Injury and Prevention Outreach Coordinator, who was involved in leading an enterprise-wide effort to provide fall prevention education and links to community resources, such as the County Extension Service's evidence-based *A Matter of Balance* program, to all older adults admitted to UK HealthCare. Later workgroup meetings were also attended by representatives from KIPRC and KDPH.

Workgroup meetings were held over a 3-month period prior to the pilot rollout and met after the conclusion of the pilot to discuss results. One day prior to the rollout, the pilot was presented at the monthly UKFCM practice-wide meeting, which was attended by health care providers, clinical service technicians (CSTs), Licensed Practical Nurses (LPNs) and other administrative staff. KDPH representatives were also present, as observers, during the Family & Community Medicine practice-wide meeting introducing the pilot, and brought with them STEADI educational materials.

The 5-day pilot was originally designed to include only two clinic teams, so as not to overburden and possibly disrupt clinic workflow, but was later extended to include all five teams. Resident physicians were present at the monthly practice meeting and they also participated in the rollout. As part of the initial quality improvement pilot, a paper version of the STEADI ambulatory screening and assessment tool (Figure 5), rather than an electronic version, was used. The CDC's STEADI algorithm was printed on the back of the form for providers for reference. The informaticist later developed mock-ups of

proposed changes to the existing Ambulatory Electronic Health Record (AEHR) (Figure 6) including modification of the fall risk screening questions (Figure 7). It was also proposed that the assessment and interventions sections be added to the AEHR, following further revisions to resolve ambiguities. The presentation to the AEHR User Group, which must approve all changes to the AEHR, was made three months following pilot completion.

Figure 5: Ambulatory Fall Risk Screening Tool for Patients Age 65 and Older

PILOT

Ambulatory Fall Risk Screening Tool for Patients Age 65 and Older

To be completed by CST/LPN:

	Yes	No
Any falls in the past year	___	___
Worries about falling or feels unsteady when standing or walking	___	___
Uses a mobility aid	___	___
Was protocol implemented	___	___

STEADI Assessment

Section to be completed by Provider:

	Yes	No	Deferred/Referral/ Comments
Medication review (psychoactive/anticholinergic/sedating, including OTC meds)	___	___	_____
TUG Test (> or = 12 seconds)	___	___	_____
Medical Conditions			
Postural hypotension	___	___	_____
Heart rate/rhythm abnormality	___	___	_____
Incontinence	___	___	_____
Depression	___	___	_____
Vision	___	___	_____
Cognitive Impairment	___	___	_____
Foot problems	___	___	_____
Other _____	___	___	_____

Interventions

	Yes	No	Deferred/Comments
Prescribe Vitamin D (+/- calcium)	___	___	_____
Refer to PT	___	___	_____
Refer for Home Safety Assessment by Home Health PT/OT	___	___	_____
Refer to Community Fall Prevention Program through County Extension Svc (Krames - Patient education tab)	___	___	_____
Provide Patient educational materials	___	___	_____

Figure 6: Fall Risk Screening in AEHR at Time of Pilot

Fall Risk:	<input type="text"/>	
Mobility Aid:	<input type="text"/>	
Fall Prevention Protocol:	<input type="text"/>	

Fall Risk: <8 y/o - fall resulted w/injury requiring medical attention
 Fall within the last 3 months
No Recent Falls

Mobility Aid:	Yes/No
Fall Prevention Protocol:	Yes/No

Figure 7: Proposed AEHR Fall Risk Screening Changes

Fall Risk:	<input type="text"/>	
Mobility Aid:	<input type="text"/>	
Worry about Falls/Unsteady	<input type="text"/>	
Fall Prevention Protocol:	<input type="text"/>	

Fall Risk: <8 y/o - fall resulted w/injury requiring medical attention
 Fall within the last : Year
No Recent Falls

Mobility Aid:	Yes/No
Worries about falls/unsteady:	Yes/No
Fall Prevention Protocol:	Yes/No

Results

There were 129 patients age 65 or older seen in the UKFCM clinic during the five-day pilot. Of those, 64, or 49.61 percent, were screened for fall risk. Of those screened, 28 answered yes to one or both of the first two screening questions. Based on a positive response to at least one of these questions, 44 percent were determined to have screened positive. Thirteen of the 64 screened (20.31 percent) had fallen in the past year, and 21 of the 64 (32.81 percent) were worried about falling or felt unsteady while walking or standing. The question “was protocol implemented” referred to the pre-existing falls protocol in place to prevent a patient from falling while in the clinic. While this was explained briefly in the clinic practice meeting, it may have needed further clarification, as it was often left blank.

Completion of the provider risk assessment was relatively low, with 25 percent of providers not responding either yes or no to medication review, and 32 percent with no response regarding vitamin D supplementation. The question regarding medication review (psychoactive/anticholinergic/sedating, including OTC medications) appears to have been subject to different interpretations. A “Yes” response may have meant medications were reviewed or that they were reviewed and contained one of the high-risk medications. A negative response may have indicated that medication review was not conducted or that medications were reviewed and the patient was not taking high risk medications. There was a similar lack of clarity regarding the Vitamin D supplementation question. Possible interpretations included: Vitamin D was prescribed

at this visit; the patient was already taking Vitamin D; the patient did not need a supplement based on test results or other factors; or the provider had not addressed the issue.

Some of the forms had the screening questions completed, but lacked any other responses, making it unclear whether the CST/LPN did not give the form to the provider, or the provider failed to complete the assessment. Due to the aforementioned ambiguities in the form, reliable statistics cannot be reported regarding provider assessments and interventions.

Evaluation

The Kotter 8-step process for organizational change (Kotter, 1995) provides the framework for evaluation of the UKFCM pilot. The Kotter model was selected following completion of the UKFCM pilot. While, in retrospect, it would have been valuable had it been used prospectively to guide the development and execution of the pilot, it is nonetheless useful for evaluative purposes and can help to guide further implementation.

Step 1: Create a sense of urgency

The first step in the process of effective change is to “create a sense of urgency among relevant people” (Kotter, 1995; Kotter & Cohen, 2002, p. 3). A sense of urgency for the pilot was effectively conveyed through connecting with audiences in a visually and emotionally compelling manner (Kotter and Cohen, 2002 p. 22) and was consistent

with Kotter's observation that: "People change what they do less because they are given *analysis* that shifts their *thinking* than because they are *shown* a truth that influences their *feelings*." (Kotter & Cohen, 2002 p. 1).

Emotion helped to create a sense of urgency at several points in the development of the UKFCM project. Workgroup members, as well as clinic providers and staff, could relate personally as well as professionally to the problem of falls in older adults. Many had family members who had fallen and/or had treated patients who had suffered fall-related injuries. The practice-wide meeting during which the pilot was introduced, opened with the presenter, a physician champion, asking attendees to raise their hand if they had a parent, grandparent, other family member or neighbor who had been impacted by a fall. The problem of falls was demonstrated visually with pictures of an older adult in a hospital bed and an x-ray of a hip fracture, while the presenter related a personal story of her older adult parents who had fallen.

A sense of urgency was enhanced by the timeliness of the quality improvement project. A CDC article on falls prevention, published several weeks prior to the presentation, included a map with Kentucky highlighted as one of the states with the highest rates of reported falls (Bergen et al., 2016). Maps of fall-related hospital and emergency room admissions by county, created by KIPRC, were also included in the presentation. Enthusiasm to play a role in changing those maps was potentiated by presenting CDC estimates of how many falls could be prevented by implementing STEADI. The presentation, modified to include pilot results, was also made to the AEHR

User Group when requesting that the STEADI tool be incorporated into the electronic health record.

A sense of urgency was also contributed to by the involvement of several workgroup members in other projects that dove-tailed with the pilot. UKHC had recently achieved prestigious Magnet Status, the highest award for institutional nursing excellence. Quality improvement and interdisciplinary relationships are important in being granted this recognition (ANCC, 2011); the pilot represented an opportunity to support this requirement. Other members of the workgroup had participated in a fall prevention initiative undertaken in another department which had not been fully implemented due to barriers such as time constraints. Workgroup members from this department wished to learn whether the UKFCM clinic encountered the same difficulties and, if so, how they could be overcome. An additional incentive was the use of the program to meet MIPS and The Joint Commission (TJC) reporting requirements. Public health practitioners involved in the project, in addition to furthering the implementation of STEADI in the state, were also interested in gaining insights into clinical practice and quality improvement processes.

Step 2: Build a guiding coalition

Organizational change is led by a guiding team or coalition, “with the credibility, skills, connections, reputation and formal authority required to provide change leadership” (Kotter & Cohen, 2002, p. 4). The workgroup team possessed the “titles, information and expertise, reputations and relationships” (Kotter, 1995) needed to

move the project forward. The pilot project, guided by physician champions, brought together key stakeholders, from various departments and disciplines within UKHC, and formed valuable relationships between the UK health care system and representatives from KIPRC and KDPH, all of whom brought their unique perspective to and role in fall prevention.

Step 3: Form a strategic vision and initiatives

The guiding team or coalition is charged with developing “sensible, clear, simple, uplifting *visions* and sets of strategies” (Kotter & Cohen, 2002, p. 4). The fall prevention workgroup was guided by and built upon the vision of the CDC’s and state public health entities to reduce fall-related rated morbidity, mortality and associated costs. The group was also driven by the organizational vision of continuous quality improvement and patient-centered care. This organizational vision was carried out through ongoing quality improvement projects within the UKFCM practice and the clinic director had substantial experience leading or overseeing quality improvement teams. The Nursing Department executive in the workgroup had been involved in achieving Magnet Status and continuous quality improvement in the ambulatory space. The initiative to incorporate the template into the AEHR, and the potential to gather data on performance measures and outcomes was a vision shared by the workgroup, and would not have been possible without the early, active involvement and expertise of the informaticist.

Step 4: Enlist a volunteer army

The pilot was developed primarily by volunteers. The pilot rollout involved all clinic providers and staff, rather than only volunteers who offered to participate. Next steps in enterprise-wide STEADI implementation may include enlisting volunteers to pilot the program in their respective clinics, participate in other efforts to implement the program and incorporate referral loops for community-based fall prevention interventions.

Step 5: Enable action by removing barriers

An assessment of facilitators and barriers was not part of the initial pilot, but is an important next phase in STEADI implementation. The literature on STEADI, as well as falls screening pre-dating STEADI, has identified a number of barriers, such as time and competing clinical demands, which likely impacted the pilot. While answers to the STEADI screening questions regarding fall history and fear of falling or unsteadiness, completed by a CST or LPN, had a response recorded on all of the 64 forms, the response rate was not as robust for the other questions which were assessed by providers. Medication review and vitamin D questions having response rates of 25 percent and 32 percent, respectively. As discussed in the results section, TUG test and other risk factor assessments had low response rates, as did interventions. Design flaws in the tool resulted in ambiguous responses and suboptimal data analysis.

Improvements, reflecting feedback from providers and staff, will need to be made prior to incorporation into the AEHR, and may require several iterations becoming

an optimally effective template and data source. Likewise, barriers related to workflow, which received little attention during the pilot rollout, will, as was described in the Oregon report, require further study and refinement.

Gaps in communication represented a barrier in pilot implementation. The overall goal of reducing falls through STEADI was communicated during the monthly practice-wide meeting which took place one day prior to the start of the pilot. While information regarding the pilot start date and the role of clinic team members in completing the forms, was provided during the meeting, this was inadequate to ensure that the pilot ran smoothly. The pilot was initially intended to include only three of the five practice teams, but after two days, only four forms had been completed, prompting the expansion of the pilot to include all five teams. When some staff were asked if they had been screening patients, it was learned that these staff members were not aware of the pilot, as the practice-wide meeting had been held on their day off. There was also lack of communication when one of the staff was absent and another employee, who had not attended the meeting, was called in to assume that employee's duties. An email with detailed pilot information could have been sent to physicians and other providers, however, CSTs and nursing staff did not routinely utilize email for clinic communication. Convening a brief daily team huddle would have helped to ensure all members of each team were aware of the pilot and their respective roles.

Step 6: Generate short-term wins

The overall success of the pilot was used to move the project forward towards enterprise-wide implementation. Results of the pilot, particularly the percentage of patients screened and the percentage of positive screens, was communicated to the team and the AEHR User Group. Presentation to the AEHR User Group resulted in modifications to the AEHR falls screening template to include the STEADI screening questions (Figure 6 and Figure 7). The assessment and interventions portion of the tool were referred to the AEHR User Group team in charge of screening templates, for further revision to eliminate ambiguities, prior to inclusion in the AEHR.

Step 7: Sustain acceleration

Short-term wins are built upon in order to gain momentum and “create wave after wave of change until the vision is a reality.” (Kotter & Cohen, 2002, p. 5). There was substantial momentum from the point of inception through pilot rollout and presentation to the AEHR User Group. The challenge will be to sustain acceleration and take the steps needed to successfully implement STEADI, including training staff; identifying barriers; improving workflow; optimizing the AEHR template; facilitating and monitoring uptake in other primary care clinics; and gathering data for quality performance reporting. Continued cooperation with public health entities will facilitate the monitoring of fall rate reduction and other metrics. Coordination with university and community resources, such as the Extension Service, will be needed to ensure that

momentum is not lost in linking patients to community resources, and closing the loop through AEHR intervention and outcome documentation.

Step 8: Institute change

The final step in the process of organizational change is “to *make change stick* by nurturing a new culture” (Kotter & Cohen, 2002, p. 5). There currently exists a strong culture of quality improvement within UKHC. The STEADI initiative appeared to be well-received by both clinic staff, providers and the AEHR User Group, but it is too early to know whether the STEADI pilot will result in full implementation in the UKFCM clinic and in other primary care throughout the UK health care system.

Based on the pilot planning process, rollout and evaluation, a number of lessons learned were identified.

Lessons Learned

Lessons learned during the development and rollout of the UKFCM pilot included:

- Communication -- The monthly practice-wide meeting was an effective forum in which to present the pilot; nonetheless some providers and staff were absent due to their individual schedules. Emails with key points of the pilot, sent prior to and after the meeting, would at least in part address this problem. These key points could also have been reviewed and reinforced at the weekly team meeting and team huddles held immediately prior to the start of clinic.

- STEADI form design – After the pilot was conducted it became clear that there were a number of ambiguities in the assessment and intervention portions of the paper form, which would have been apparent had it been tested prior to use. The assessment and intervention sections of the form will need to be revised by the AEHR User Group committee overseeing screening templates, prior to incorporation into the AEHR.
- Division of tasks –During the development process it was decided that the TUG test, which includes an assessment of patient gait and balance, was outside of the CST’s scope of practice. Had the test been limited to recording the time it took for the patient to complete the TUG, it could have been performed by the CST, thereby reducing the burden on the provider and likely increasing the number of tests done during the pilot.
- Training – There were no formal STEADI training sessions conducted as part of the pilot. A TUG test video was not shown during the practice meeting due to technical difficulties. A link to the video was emailed to providers, but given that the practice meeting and email occurred the day before the pilot commenced, providers may have not had enough time to view the video.
- Referrals to fall prevention programs – There were no referrals made to community or university-affiliated fall prevention or exercise programs, which may have been attributable to lack of provider familiarity with these programs. As has been noted in the STEADI literature, processes that seamlessly link patients to fall prevention programs are needed in order to

ensure that patients receive evidence-based interventions and that participation and completion of the intervention is documented in the patient's electronic health record.

- Interdisciplinary, interdepartmental cooperation – Collaboration among different disciplines and departments was key to the pilot's success. The experiences of workgroup members who had participated in fall-related projects in other departments, the inpatient setting and initial ambulatory screening project helped guide pilot development. Interdepartmental collaboration was, and will continue to be instrumental in the integration of the STEADI tool into the enterprise-wide AEHR preventive health note form.
- The role of public health – Both UKFCM and public health entities benefited by the STEADI pilot partnership. UKFCM was able to improve the quality of care it provides to older adult patients through the use of a clinical decision support tool developed by the CDC and promoted through the state health department. It was able to provide patients with CDC educational materials supplied by KDPH. KDPH gained insights into the challenges faced by clinicians and health care systems in STEADI implementation, which will inform its statewide implementation efforts.

Recommendations/Next Steps

- A survey and/or meetings should be conducted in order to solicit feedback from providers and staff who participated in the pilot. Facilitators and barriers, as well as potential solutions to challenges should be identified and incorporated into the AEHR tool and enterprise-wide STEADI implementation.
- The AEHR template should be revised to eliminate/reduce ambiguities that were present in the paper form. Providers should test the tool prior to integration into the AEHR. The screening questions, medication review and vitamin D supplementation (if appropriate) should be featured prominently.
- The AEHR tool should be linked to reimbursement for Medicare annual wellness visits, which include fall risk screening. This may also serve to increase utilization rates for these visits, which are only 12.8% in Kentucky, and 17.7% nationally (CMS, 2015).
- STEADI toolkit training sessions should be conducted, preferably in small group sessions, as was done in the Oregon pilot (Casey et al., 2016). KDPH could participate in the training of clinicians and staff, as this model has been used successfully in other STEADI implementation projects. Online CDC STEADI training, for which continuing education credits are granted, should also be encouraged.
- Workflow and task allocation among team members should be formally assessed and refined based on provider and staff feedback. In addition, engaging other UKHC professionals, such as Pharmacists, who could contribute expertise in

medication management and reduce the burden on providers. The CDC has recently launched online STEADI training and continuing education credits for pharmacists (CDC, 2017). The Physical Therapy department should continue to be involved, and could assist in performing gait and balance assessments.

- Providers and staff should receive additional information and education on evidence-based university and community fall prevention interventions, such as Stepping-On and Tai Chi: Moving for Better Balance.
- Referrals to community-based programs should be documented, with follow up regarding whether the patient participated in and completed the program. The referral process would ideally be incorporated into the AEHR.
- Relationships with community organizations and public health entities should be continued and strengthened. KDPH's continued involvement, particularly in the area of training, will be important in successful implementation both within the UKHC system and statewide. As a state health department, KDPH can act as a "connector" by providing forums in which UKHC can share its model with other stakeholders (Shubert et al., 2016).

Conclusion:

The STEADI algorithm and toolkit promise to reduce falls in older adults nationally and in Kentucky. UKFMC embarked on the first step in implementing STEADI in a major health care system in the Commonwealth. The five-day pilot resulted in screening almost 50 percent of eligible patients. The pilot development and rollout contained many of Kotter's elements for successful organizational change. The three key strengths which helped to ensure the pilot's success were: 1) creating a sense of urgency through coupling compelling epidemiological data regarding the high rate of falls in Kentucky, to the emotional and personal impact of falls on individuals and their families; 2) building a guiding coalition of stakeholders, including the interdisciplinary/interdepartmental workgroup and KDPH; and 3) generating short term wins by completing a pilot that achieved a screening rate of close to half of all all eligible patients and advocating for integration of STEADI into the AEHR. Challenges included effective communication with clinic staff and ambiguities in the paper STEADI form which hindered pilot data analysis. Next steps in the implementation process include formal assessment of workflow and barriers, such as cost, time, staffing and resources. Further revision of the AEHR template will be needed in order to optimize uptake and enable the collection and analysis of data for reimbursement and reporting of quality measures. Reimbursement and other incentives will also be required to build a business case and achieve buy-in from health care system leadership.

Implementation of STEADI throughout UKHC, as well as statewide community-based primary care practices who partner with UKHC, will be incremental and tailored to the unique needs and environment of each clinical site. Optimally, the algorithm in its entirety would be implemented, as multidimensional interventions, particularly those that include gait, balance and strength training, have the greatest impact on reducing falls (Stevens & Burns, 2015). A more limited approach, focusing on three key actions: screening, reviewing medications to reduce/eliminate those that increase fall risk and prescribing Vitamin D, to improve musculoskeletal health (Bergen et al., 2016) may also be considered in order to promote better uptake.

Finally, continued partnership with key stakeholders, one of the strengths of the UKFCM pilot, will be needed to assure that STEADI's aim of reducing fall rates in older adult is achieved. Public health entities and other community partners will be critical in providing training, evidence-based interventions and outreach to vulnerable and underserved older adults. Strong collaborative relationships will need to be forged between health care providers and community organizations to create a seamless referral process.

Injury and death resulting from falls is a significant public health problem in Kentucky, which has reported rates above the national average. Further research regarding the etiology of the state's high rates of falls and fall-related injuries is needed in order to develop targeted solutions. Falls and fall-related injuries will have a growing impact as the population ages. The UKFCM STEADI pilot represents an important first

step in reducing the rate of injuries, deaths, as well as the costs, attributable to falls in the older population in Kentucky.

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Appendix A: Stay Independent Brochure



Four things you can do to prevent falls:

- 1 Begin an exercise program to improve your leg strength & balance
- 2 Ask your doctor or pharmacist to review your medicines
- 3 Get annual eye check-ups & update your eyeglasses
- 4 Make your home safer by:
 - Removing clutter & tripping hazards
 - Putting railings on all stairs & adding grab bars in the bathroom
 - Having good lighting, especially on stairs

Contact your local community or senior center for information on exercise, fall prevention programs, or options for improving home safety.

For more information on fall prevention, please visit:
www.cdc.gov/steady
www.stopfalls.org

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 VA Greater Los Angeles Healthcare System, Geriatric Research Education & Clinical Center (GRECC), and the Fall Prevention Center of Excellence



Centers for Disease Control and Prevention
 National Center for Injury Prevention and Control

2015

CE200940

Stay Independent

Falls are the main reason why older people lose their independence.

Are you at risk?



“It’s not the broken hip, it’s the nursing home I don’t want. I need to be independent, so I take Tai Chi.”
Leonard Jones, age 74

“People who use canes are brave. They can be more independent and enjoy their lives.”
Shirley Warner, age 79



Check Your Risk for Falling

Please circle “Yes” or “No” for each statement below.		Why it matters	
Yes (2)	No (0)	I have fallen in the past year.	People who have fallen once are likely to fall again.
Yes (2)	No (0)	I use or have been advised to use a cane or walker to get around safely.	People who have been advised to use a cane or walker may already be more likely to fall.
Yes (1)	No (0)	Sometimes I feel unsteady when I am walking.	Unsteadiness or needing support while walking are signs of poor balance.
Yes (1)	No (0)	I steady myself by holding onto furniture when walking at home.	This is also a sign of poor balance.
Yes (1)	No (0)	I am worried about falling.	People who are worried about falling are more likely to fall.
Yes (1)	No (0)	I need to push with my hands to stand up from a chair.	This is a sign of weak leg muscles, a major reason for falling.
Yes (1)	No (0)	I have some trouble stepping up onto a curb.	This is also a sign of weak leg muscles.
Yes (1)	No (0)	I often have to rush to the toilet.	Rushing to the bathroom, especially at night, increases your chance of falling.
Yes (1)	No (0)	I have lost some feeling in my feet.	Numbness in your feet can cause stumbles and lead to falls.
Yes (1)	No (0)	I take medicine that sometimes makes me feel light-headed or more tired than usual.	Side effects from medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I take medicine to help me sleep or improve my mood.	These medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I often feel sad or depressed.	Symptoms of depression, such as not feeling well or feeling slowed down, are linked to falls.
Total _____		Add up the number of points for each “yes” answer. If you scored 4 points or more, you may be at risk for falling. Discuss this brochure with your doctor.	

This checklist was developed by the Greater Los Angeles VA Geriatric Research Education Clinical Center and affiliates and is a validated fall risk self-assessment tool (Rubenstein et al. J Safety Res; 2011;42(6):493-499). Adapted with permission of the authors.

Your doctor may suggest:

- Having other medical tests
- Changing your medicines
- Consulting a specialist
- Seeing a physical therapist
- Attending a fall prevention program

